FURNACE INSPECTION SERVICES

A LEADING PROVIDER OF SPECIALIST FURNACE INSPECTION SERVICES.

DGC offers a comprehensive range of Furnace Inspection Services to the metals smelting, mineral processing, thermal energy and industrial furnace industries.

The services include:

- High-Temperature Endoscopy
- Infrared Thermography

FOUNDED 1910

DGC

DICKINSON

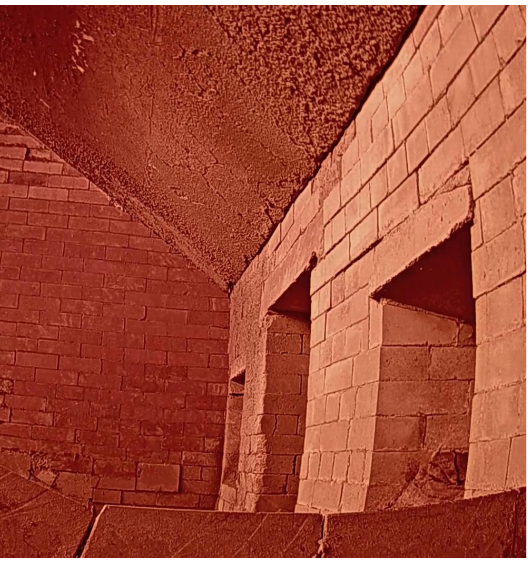
GROUP OF COMPANIES

DGC HAS ESTABLISHED STRATEGIC ALLIANCES WITH LEADING TECHNOLOGY PARTNERS FROM COUNTRIES AROUND THE GLOBE.

ENDOSCOPY

Endoscopy at working temperature allows for the real-time, remote visualization of the interior of a furnace during normal operations, enabling the assessment of the condition of the refractories inside the unit.

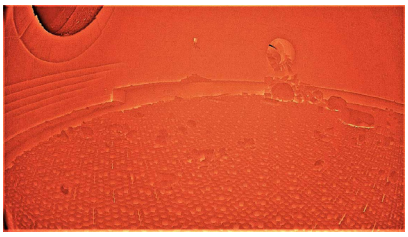
The robust, purpose-designed endoscopy devices are capable of operating within the extremely harsh conditions inside furnaces. Probes are designed to have small diameters thereby only requiring small openings (as small as 45mm).

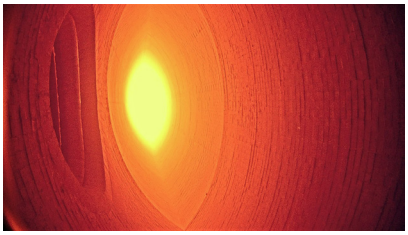


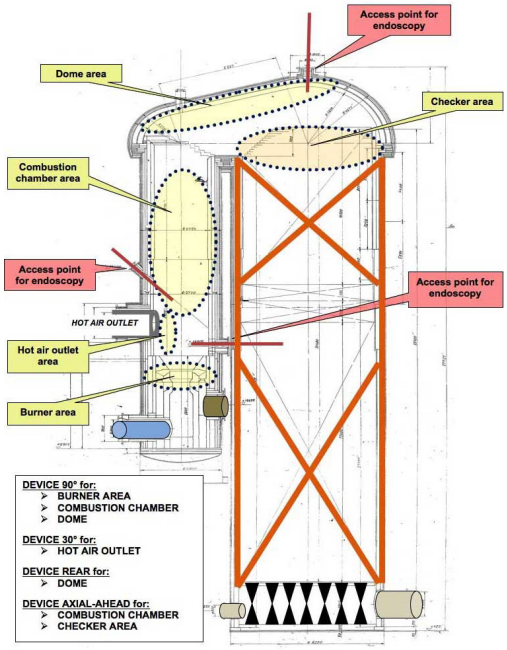
The Endoscopy offers high-quality images thanks to Full HD video cameras integrated into the cooling jacket. The furnace can only be observed using the digital video module, which allows all images to be viewed simultaneously on a computer or tablet. With its water and air-cooled housing, the Endoscopy can operate in furnaces with temperatures up to 1600°C.

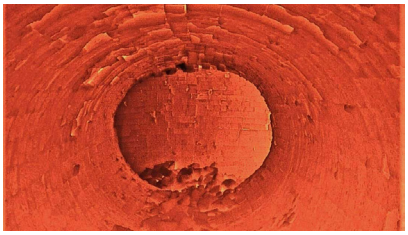
Furnace endoscopy is a proactive measure that permits for the timeous identification of a number of issues that are linked to the state of the furnace, typically before the onset of the orthodox, speculative, and lagging performance indicators.

HOT BLAST STOVE ACCESS









APPLICATIONS

Amongst other possibilities, employing the services allows plant owners the following feasibilities:

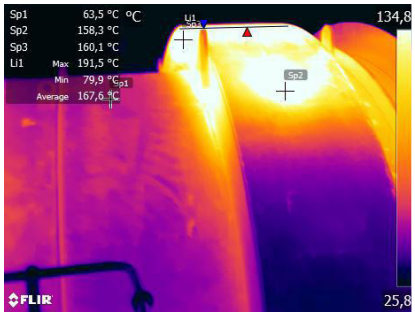
- Furnace wall and refractory monitoring to prevent catastrophic runouts
- Efficient scheduling of furnace maintenance or furnace rebuilds
- Closely monitoring the critical stages of the furnace in its later stages of operation as to balance the risk of safety concerns with the goal to maximize production
- Guiding of strategic decisions about furnace operations, e.g. choice of production operations depending on their impact on the health of furnace
- Objective investment optimization

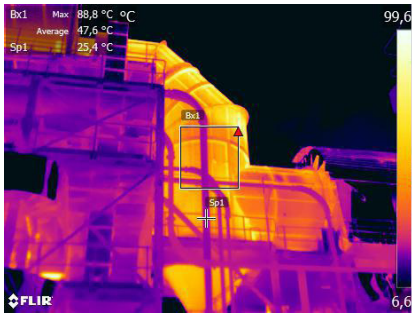
INFRARED THERMOGRAPHY

Infrared thermography involves the real-time, visualization of the thermal status of furnace equipment from the outside, without any contact.

Priority is on HOT SPOTS detection and temperature measurements which should help to monitor the evolution of damages on the refractory lining, measuring the remaining thickness of the said lining.

The adoption of infrared thermography enables operators to constantly monitor the metallic shell status, identify/localize damaged areas (internal/external) as well as estimate the remaining refractory lining thickness. The technique ultimately allows for the early detection of HOT SPOTS which could lead to the following:





- Safety risks for staff
- Mitigating major damage to the furnace
- Impacts on ancillary
- Production losses
- Expensive repair costs
- Poor energy efficiency

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110 YEARS OF DOING BUSINESS

BENEFITS

The benefits of furnace endoscopy and infrared thermography include the following:

- Compilation of comprehensive records of wear for refractory lining.
- Reduced unplanned stoppages.
- Maximizing furnace equipment availability, increasing yields and reducing operating costs.
- Efficient planning for scheduled shutdowns and refractory materials supplies.
- Confident budget planning for purchase of very expensive items such as refractories.
- Knowledge sharing with plant maintenance staff.